**IN THE UNITED STATES DISTRICT COURT**
**FOR THE DISTRICT OF MASSACHUSETTS**

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| MASSACHUSETTS INSTITUTE OF TECHNOLOGY,<br><br>        Plaintiff,<br><br>v.<br><br>HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED,<br><br>        Defendant. | Civil Action No.: 05-10990 DPW<br><br>Magistrate Judge Judith G. Dein |

**MIT'S RESPONSE TO HARMAN'S CLAIM CONSTRUCTION MEMORANDUM**

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## I.    **INTRODUCTION**

Broadly speaking, there are two significant legal errors running throughout the arguments Harman makes in its in Memorandum in Support of Its Proposed Claim Constructions ("Harman's Memorandum"):

*First*, Harman fails to read the claim terms in the context of the *invention*, presenting its case without any reference to the mounds of evidence supporting a claim construction consistent with the invention -- and with MIT's proffered constructions; and

*Second*, Harman urges constructions which, in fact, would cause the patent not to even cover the *preferred* embodiment of the invention described in the patent.

As this Court focuses on the competing constructions, it should remember:

> Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim.  The construction that stays true to the claim language *and most naturally aligns with the patent's description of the invention* will be, in the end, the correct construction.

*Renishaw PLC v. Marposs Societa' Per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998) (citation omitted, emphasis added).

The '685 patent describes an automobile navigation system with a number of interacting modules operating "behind-the-scenes" to generate intelligent spoken discourse for the driver. MIT is not overreaching here with the enforcement of this patent -- the patent carefully and in great detail describes the invention Jim Davis and Chris Schmandt made in designing the first ever *working* "back seat driver."  Notably, through all the claim construction argument, Harman offers no patents or other publications suggesting *anyone* made a practical working "back seat driver" before Davis and Schmandt, and Harman offers no evidence suggesting that *it* uses a different technology.

Harman's entire defense -- it's entire defense -- hinges on hyper-technical overly-semantic parsing of words in a contextual vacuum -- even where those words have a plain and ordinary meaning to those of skill in the art who might read the patent to *understand* the invention.

Once the invention is understood, the plain meaning of the terms will quickly come into focus.

### A.  Harman Improperly Asks The Court To Interpret Claim Elements In Isolation, Without Reference To The *Invention*

"Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the <u>context of the entire patent, including the specification</u>." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (emphasis added).

It is black letter law that words of a claim "are generally given their ordinary and customary meaning." *Phillips*, 415 F.3d at 1312. Ignoring this law, Harman asks the Court to read limitations into the patent that are so narrow the claims either would not cover the MIT invention, or are so broad as to cover everything done before -- including all the prior art MIT disclosed during the Patent Office proceedings. In effect, Harman asks the Court to issue constructions that:

1) denigrate the importance of the "discourse generator," offering a definition so broad that it would cover virtually everything done before MIT's invention;

2) exclude the very map database the inventors used, offering a definition so narrow that it wouldn't even cover what the inventors described in their patent; and

3) require a functional connectedness between components so narrow, that even the system described by the inventors would be deemed not to "consult" a map database in operation.

Harman so cherry-picks sentences from the prosecution history and so selectively ignores the contrary evidence describing the *invention,* that it asks the Court to read the *invention* right out of the claims.  Of course, a construction that reads the preferred embodiment out of the claim makes no legal sense:

> A claim interpretation that reads out [of a claim] a preferred embodiment 'is rarely, if ever, correct and would require highly persuasive evidentiary support.'…We have done so only one time — in an instance where the patent applicant limited the full scope of the claim language to omit the preferred (and only disclosed) embodiment in order to overcome an examiner's rejection.)

*Amgen, Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1349 (Fed. Cir. 2003) (internal citation omitted).

A defendant cannot simply ignore express language in a patent whenever that language is inconvenient to its narrow positions.  It cannot argue snippets and sound bites from the prosecution history and other even more remote extrinsic evidence that is legally irrelevant. While on the one hand Harman concedes that "the intrinsic evidence is ample and sufficient," it then takes the extraordinary step of citing to extrinsic licensing correspondence for what Harman calls "admissions" MIT made while seeking potential licensees for the '685 patent.  *See* Harman Mem. at 9.  Of course, these references to the prosecution history and extrinsic evidence cannot override the plain meanings of the claim terms as described in the patent itself.

In other words, here, Harman does exactly what the Federal Circuit has admonished time and time again, when it criticizes defendants who argue "potential extrinsic evidence of some marginal relevance…leaving the court with the considerable task of filtering useful extrinsic evidence from the fluff."  *Phillips*, 415 U.S. at 1318; s*ee also*, *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 981 (Fed. Cir. 1995) (*en banc*) ("Extrinsic evidence is to be used

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for the court's understanding of the patent, not for the purpose of varying or contradicting the

terms of the claims"), *aff'd* 517 U.S. 370 (1996).


## II.    **MIT DID NOT GET A PATENT THAT COVERS NOTHING.**

### A.    *"Discourse Generator"* – Harman Argues For A Definition That Ignores *Ten* Columns Of Text In The Patent And Which Deletes From The Claim The *Crux* Of The Invention

Claim 1 has the "discourse generator" element:

> *a discourse generator* functionally connected to said computing apparatus for accepting the current position from said location system and the route from said route finder, for consulting said map database, *and for composing discourse including instructions and other messages for directing the driver to the destination from the current position; ...*

Exh. 1 at 30:20-26.[1]

MIT proposes that a "discourse generator" is:

> A module, in software or hardware, which composes driving instructions and other messages according to a *discourse model*, for delivery at the appropriate time and place, and based on the current position of a vehicle and its planned route.

MIT Mem. at 17.

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[1]    Exhibits 1-21 were attached to MIT's Opening Memorandum on Claim Construction ("MIT's Memorandum").

MIT's proposed language comes *directly* from the patent:

[57]                    **ABSTRACT**

An automobile navigation system which provides spoken instructions to the driver of an automobile to guide the driver along a route is disclosed. The heart of the system is a computing apparatus comprising a map database, route finding algorithms, a vehicle location system, discourse generating programs, and speech generating programs. Driver input means allows the driver to enter information such as a desired destination. The route finding algorithms in the computer apparatus calculate a route to the destination. The vehicle location system accepts input from a position sensor which measures automobile movement (magnitude and direction) continuously, and using this data in conjunction with the map database, determines the position of the automobile. Based on the current position of the automobile and the route, the discourse generating programs compose driving instructions and other messages according to a discourse model in real time as they are needed. The instructions and messages are sent to voice generating apparatus which conveys them to the driver.

Exh. 1 at Abstract.

Similar language is in the body of the patent specification:

> The automobile navigation system according to the present invention is illustrated schematically in FIG. 1. The heart of the system is a computing apparatus **10** comprising a vehicle location system **12**, a map database **14**, a route finder **16**, a discourse generator **18**, and a speech generator **20**. Driver input means **22** allows the driver to input to the computing apparatus **10** information such as a desired destination. A position sensor **24** measures automobile movement (magnitude and direction) and sends data to the location system **12** which tracks the position of the automobile on the map. The route finder **16** calculates a route to the destination. Based on the current position of the automobile and the route, the discourse generator **18** composes driving instructions and other messages according to a discourse model in real time as they are needed. The instructions and messages are sent to the speech generator **20** which conveys them to the driver by means of a speaker system **26**. The speaker system may be that of the car's radio.

Exh. 1 at 3:23-42.

> The discourse model preferred for the Back Seat Driver is a partial implementation of the discourse theory described by B. J. Grosz and C. L. Sidner ("Attention, intentions, and the structure of discourse" in *Computational Linguistics*, 12(3):175–204, 1986) and the theory of intonational meaning described by J. Hirschberg and J. Pierrehumbert ("The intonational structuring of discourse" in *Proceedings of the Association for Computational Linguistics*, 136–144, July 1986). Both of these articles are herein incorporated by reference. This

Exh. 1 at 23:6:-15.

Harman argues that to construe the phrase "discourse generator," the Court should take each word in the phrase separately, look the word up in the dictionary, and then combine the definitions. Thus, Harman suggests for a definition that:

> discourse is simply words to be spoken…discourse in claim 1 must include 'instructions and other messages,' where instructions and other messages include those terms described in the specification as such. A discourse generator generates discourse.

Harman Mem. at 20.

The problem with Harman's definition is that "discourse generator" is a *compound* term, and not just two separate words joined by happenstance. Under Harman's approach, a "lobster fork" would be a fork made out of a lobster -- rather than a fork used to eat lobster.

The Federal Circuit has cautioned courts not to "look at the ordinary meaning of [a claim term]…in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history." *Phillips*, 415 F.3d at 1313 (quoting *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005)).

The phrase "discourse generator" is not a phrase that has a meaning that jumps out to someone in the industry. Instead, the term was coined by the inventors to describe what they invented and claimed in their patent. They described the "discourse generator" as something that composes driving instructions and other messages according to a *discourse model*. They then described *discourse model* as:

> a way to provide information needed by a hearer conversation participant in context to enable the hearer conversation participant to determine why an utterance was provided and what the utterance means. *A discourse model provides contextual information and the discourse state to enable a speaker conversation participant to know what to say and how to express it*.

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Exh. 1 at 23:5-15 (emphasis added) (incorporating the definition from the Grosz and Sidner

paper); *see also* Exh. 9 at 7 (confirming MIT's construction of discourse model is consistent with

understanding in the natural language processing art).

Harman, unusual for a defendant, argues for a broad interpretation of discourse generator,

trying to write out of the claim the key limitation for a "discourse model" when defining

"discourse generator." Harman argues that the "detailed discourse structure and discourse model

language included in MIT's proposed construction…relate, at best, to a particular preferred

embodiment." Harman Mem. at 22. But, to support this argument, Harman misquotes the patent

specification at column 23.

The patent makes clear that a discourse model is needed to generate discourse, and then

discusses one "preferred" discourse model:

> The discourse model preferred for the Back Seat Driver is a partial implementation of the discourse theory described by B. J. Grosz and C. L. Sidner ("Attention, intentions, and the structure of discourse" in *Computational Linguistics*, 12(3):175–204, 1986) and the theory of intonational meaning described by J. Hirschberg and J. Pierrehumbert ("The intonational structuring of discourse" in *Proceedings of the Association for Computational Linguistics*, 136–144, July 1986). Both of these articles are herein incorporated by reference. This

Exh. 1 at 23:6-15.

Harman misquotes that language to suggest that even the idea of using a discourse model

is optional:

"The discourse model [is] *preferred* for the Back Seat Driver."

Harman Mem. at 25.

In fact, the discourse model is integral to the discourse generator.  On the *very first page* of the '685 patent, in the abstract, the inventors clearly stated that their invention generated instructions and other messages "*according to a discourse model*" and "in real time."[2]

[57]        **ABSTRACT**

An automobile navigation system which provides spoken instructions to the driver of an automobile to guide the driver along a route is disclosed. The heart of the system is a computing apparatus comprising a map database, route finding algorithms, a vehicle location system, discourse generating programs, and speech generating programs. Driver input means allows the driver to enter information such as a desired destination. The route finding algorithms in the computer apparatus calculate a route to the destination. The vehicle location system accepts input from a position sensor which measures automobile movement (magnitude and direction) continuously, and using this data in conjunction with the map database, determines the position of the automobile. Based on the current position of the automobile and the route, the discourse generating programs compose driving instructions and other messages according to a discourse model in real time as they are needed. The instructions and messages are sent to voice generating apparatus which conveys them to the driver.

In the "Summary of the Invention" section of the patent, Davis and Schmandt wrote more about the output of the discourse generator, describing it as much more than mere instructions: the discourse generator tells the driver "what to do and where to do it" and "chooses verbs to indicate the kind of intersection and the way of moving through it."  It gives instructions "just in

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2        According to the Manual of Patent Examining Procedure ("MPEP"), which is a guide for U.S. Patent Examiners:

The content of a patent abstract should be such as to enable the reader thereof, *regardless of his or her familiarity with patent documents*, to determine quickly from a cursory inspection of the nature and gist of the technical disclosure and should *include that which is new in the art to which the invention pertains*.  MPEP § 608.01(b) (8th ed.) (emphasis added).

time for the driver to take the required action," and "instructions in advance, if time allows."

"Giving instructions for following a route requires breaking the route down into a sequence of

driving acts, and knowing when an act is obvious to the driver and when it needs to be

mentioned."

> Driving instructions generated by the Back Seat Driver are modeled after those given by people. The two issues for spoken directions are what to say (content) and when to say it (timing). The content of the instructions tells the driver what to do and where to do it. The Back Seat Driver has a large taxonomy of intersection types, and chooses verbs to indicate the kind of intersection and the way of moving through it. The instructions refer to landmarks and timing to tell the driver when to act.
>
> Timing is critical because speech is transient. The Back Seat Driver gives instructions just in time for the driver to take the required action, and thus the driver need not remember the instruction or exert effort looking for the place to act. The Back Seat Driver also gives instructions in advance, if time allows, and the driver may request additional instructions at any time. If the driver makes a mistake, the Back Seat Driver describes the mistake, without casting blame, then finds a new route from the current location.
>
> Giving instructions for following a route requires breaking the route down into a sequence of driving acts, and knowing when an act is obvious to the driver and when it needs to be mentioned. This further requires knowledge about the individual driver, for what is obvious to one may no be so to another. The Back Seat Driver preferably stores knowledge of its users, and uses this knowledge to customize its instructions to the preferences of the users.

Exh. 1 at 2:34-62. These features are what make the MIT patent unique -- no prior art reference

discloses these features.

Harman responds that despite this extensive language, the "discourse model" merely

"explain[s] features relating to the dependent claims, not claim 1." Harman Mem. at 23.

Harman also argues that MIT's construction violates the "doctrine of claim differentiation," arguing that MIT is trying to read limitations of dependent claims 42, 45, and 51 into the discourse generator element of claim 1.  Harman Mem. at 26.  This may be the first time an accused *patent infringe*r argued that the *patent owner* was seeking too narrow a scope for the claims, and that the doctrine of claim differentiation required the claims to be broader!

In fact, the doctrine of claim differentiation is a not a hard and fast rule, but a general guide for claim interpretation that creates a presumption that each claim in a patent has different scope than the other.  *See SeaChange, Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1368-69 (Fed. Cir. 2005).  The doctrine is at its strongest "where the limitation that is sought to be 'read into' an independent claim already appears in a dependent claim."  *Id.* (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004)).  Here, many of the dependent claims describe the *output* of the discourse generator, but none claim discourse generation according to a discourse model.  *See, e.g.*, Exh. 1 at claims 42, 44-47, and 54.  Particularly, none of the dependent claims recite a "discourse model," that would be incorporated into claim 1, and MIT's proposed construction does not run afoul of claim differentiation.

Finally, in a last ditch effort to *broaden* the claim term beyond the disclosed invention, Harman devotes three pages in its brief to irrelevant extrinsic evidence, stating that MIT has somehow "admitted" in licensing discussions that the discourse generator element of the claim was "very broad."  Harman Mem. at 28-31.  The term "discourse generator" _is_ "broad," in that it is not limited to any one type of discourse model.  Of course, that does not mean it is so broad that it writes the invention right out of the patent.  Harman's discussion of this inadmissible evidence, however, is a red herring because it is well-established law that "the testimony of [the patentholder] and his patent attorney on the proper construction of the claims is entitled to no

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deference." *Markman*, 52 F.3d at 983. Yet, MIT's construction is not inconsistent with any prior position that MIT may have taken.[3]

The "discourse generator" in the patent generates much more than mere spoken words -- *discourse involves context that can be determined from the sentences.* No prior art patent or publication cited by Harman shows a navigation system speaking words *in context* or in sentences that refer or relate to each other. When Harman argues that MIT attempts to graft limitations such as "delivery at the appropriate time and place," "based on the current position of the vehicle and its planned route," and "in context to enable the conversation participant to determine why an utterance was provided and what an utterance means," Harman Mem. at 31, Harman misreads MIT's proposed construction. Those terms describe the entire "discourse generator" and how it operates in "an automobile navigation system which produces spoken instructions…in real time." MIT's proposed construction stays true to the actual words of the claim.[4]

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[3]     Harman refers here to licensing correspondence between MIT and a third party, where MIT "emphasize[d] that the 'discourse generator' limitation of claim 1 of the '685 patent did not require any particular type of discourse or discourse model and that 'discourse' included 'simple, pre-recorded phrases.'" Harman Mem. at 30. Harman's argument completely misses the point. Mr. Pasternack (MIT's patent attorney) could not have been clearer: "Claim 1 is *not* directed to a discourse generator, but to an automobile navigation system, one element of which is a discourse generator." *Id.* Mr. Pasternack then went on to discuss possible *outputs* of the discourse generator, and *not* how the outputs were generated. As the patent makes clear, a "brief description" of an action, such as "Bear left," can be generated by the discourse generator, when appropriately based on the discourse model. Exh. 1 at 15:39-47. The discourse generator can also generate long descriptions of an action. *Id.* at 16:41-49. The fact that the discourse generator can generate simple instructions does not mean that all simple instructions are discourse. In fact, if they are not given in context, they may not be discourse.

[4]     Harman tries to equate inventor Davis' initial work on *static* direction-giving (his "Direction Assistance" work) with the Back Seat Driver automobile navigation system. Direction Assistance and Back Seat Driver are two entirely different things -- for no lesser reason than the Back Seat Driver was an automobile *navigation* system that could provide *spoken* instructions *in real-time*. Direction Assistance, on the other hand, was a *static* direction-giving system that did not provide instructions in real time. To the extent that Direction

**B.**    ***"Driver Input Means"* And *"Functionally Connected"* -- Harman Ignores The Fact That The Patent Discusses A Broad Array Of Data Entry, *Including* Entry Of The Driver's Destination By Selecting From A List**

**1.    The Function of the "Driver Input Means"**

Another element in the patent is the "driver input means:"

> driver input means functionally connected to said computing apparatus for entering data into said computing apparatus, said data including a desired destination

Exh. 1 at claim 1.  MIT proposes that "entering data" in the context of this element has a plain

and ordinary meaning:

> "Communicating the destination to the computing apparatus."

MIT Mem. at 23.  Again, MIT's proposed language comes directly from the patent:

[57]                **ABSTRACT**

An automobile navigation system which provides spoken instructions to the driver of an automobile to guide the driver along a route is disclosed. The heart of the system is a computing apparatus comprising a map database, route finding algorithms, a vehicle location system, discourse generating programs, and speech generating programs. Driver input means allows the driver to enter information such as a desired destination. The route finding algorithms in the computer apparatus calculate a route to the destination. The vehicle location system accepts input from a position sensor which measures automobile movement (magnitude and direction) continuously, and using this data in conjunction with the map database, determines the position of the automobile. Based on the current position of the automobile and the route, the discourse generating programs compose driving instructions and other messages according to a discourse model in real time as they are needed. The instructions and messages are sent to voice generating apparatus which conveys them to the driver.

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Assistance generated a form of "discourse," it did not use a "discourse generator" as described in

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Exh. 1 at Abstract.

> The automobile navigation system according to the present invention is illustrated schematically in FIG. 1. The heart of the system is a computing apparatus 10 comprising a vehicle location system 12, a map database 14, a route finder 16, a discourse generator 18, and a speech generator 20. Driver input means 22 allows the driver to input to the computing apparatus 10 information such as a desired destination. A position sensor 24 measures automobile movement (magnitude and direction) and sends data to the location system 12 which tracks the position of the automobile on the map. The route finder 16 calculates a route to the destination. Based on the current position of the automobile and the route, the discourse generator 18 composes driving instructions and other messages according to a discourse model in real time as they are needed. The instructions and messages are sent to the speech generator 20 which conveys them to the driver by means of a speaker system 26. The speaker system may be that of the car's radio.

Exh. 1 at 3:23-42.

Harman, on the other hand, suggests that "entering data" should mean:

> "Entering data into said computing apparatus, said data including a desired destination" that would not "encompass[] a more cooperative, bi-directional approach to address selection from data that already exists within the system."

Harman Mem. at 11, 40 n. 12.

The "Driver Input Means" described in the patent allows the driver to tell the Back Seat Driver where he or she wants to go -- the driver's desired destination. The patent makes it clear that the "driver input means" is for the driver to enter the desired destination. Harman suggests that the term should be so narrowly construed so as to exclude the situation where a driver

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the patent because the output of the Direction Assistance program was not provided in real-time.

*selects* a destination from a list given to him or her after he or she enters a few of the initial

letters, as opposed to actually typing in the destination in full. Of course, Harman's suggestion

ignores the fact that *any* navigation system using a map database (*including the one described in*

*the patent*) wants the user to select destinations that are included in the map database.

MIT's proposed construction tracks the plain and ordinary meaning of the term "driver

input means" as used in the patent, and makes clear that the "function" of the "driver input

means" is to allow the driver to communicate the desired destination to the system. The patent

devotes almost an entire column to the "Driver Input Means," and describes multiple ways for a

driver to communicate the destination to the system: a) yes/no questions; b) *selection from a list*;

c) number entry; d) name entry; and e) speech input. MIT Mem. at 25; Exh. 1 at 23:64-24:60.

Most importantly, the patent expressly describes exactly the way Harman's accused

automobile navigation systems does destination input:

> If a name collision occurs, the Back Seat Driver reads the list of possibilities, and asks the driver which one was meant. This is very rare. A more common problem is that street names are duplicated. When this happens, the Back Seat Driver asks the user a series of questions to reduce the list to a single choice. It tries to ask the fewest questions possible. It asks the user to choose from a list of street types, if that is sufficent to resolve the question, and otherwise from a list of the containing cities (or neighborhoods, if there are two instances within a single city). To select from a list, the Back Seat Driver reads the contents, asking the user to push a button when the desired choice is read.

Exh. 1 at 24:32-44. The patent shows that the driver enters or inputs data (*i.e.*, the destination)

into the computing apparatus by *selecting* the destination from a list, a list which is generated

after the user makes an initial input.

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Harman argues that when, during prosecution, MIT amended claim 1 at the examiner's request to specifically note that there were interconnections between system components, MIT somehow intentionally _dis_claimed a system in which possible destinations were pre-stored in the navigation system. Harman Mem. at 11. In order to apply such a grossly narrowing limitation as Harman is urging, however, the prosecution history must show "deliberate, unequivocal surrender" of the claimed subject matter. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1460 (Fed. Cir. 1998). The court cannot "apply the doctrine of prosecution disclaimer where the alleged disavowal of claim scope is ambiguous," *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003), because the law prohibits disclaimer unless the patentee's language is "so unmistakable as to be unambiguous evidence of disclaimer." *Id.* at 1325.

Harman can point to nothing in the patent which supports its narrow view that the term "entering data [that is not already in the computing apparatus] into the computing apparatus," was meant to be so narrow as to exclude data input by the driver for a destination or street address where the destination data is already stored in the map database and then selected by the driver. For the driver to enter, input or select a destination at all, that destination is _by definition in the patent_ already stored in the navigation system:

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> The Back Seat Driver should allow the driver to select famous destinations by name in addition to address by including this information in a database, and this database should be integrated with the services database, discussed below. The Back Seat Driver should also support names of buildings and office plazas made up by developers without reference to the street names.
>
> Service locations are preferably stored in a services database. This database lists services such as gas stations, automatic teller machines and stores. For each service is recorded the name of the establishment, the address, phone number, and hours of operation. This allows the Back Seat Driver to select the closest provider of a service known to be open. The database can also be used as a source of landmarks when giving directions.
>
> The map database preferably contains information on the division of the city into neighborhoods. This is useful for selecting an address. The postal ZIP code is not good for classifying neighborhoods.

Exh. 1 at 7:8-28.

### 2.    "Functionally Connected"

With respect to the term "functionally connected" in the claim, Harman argues that

because the "location system" accepts data from position sensors and consults the "map

database," data must move in only one direction from the position sensors to the location system,

and from the location system to the map database, respectively.  Harman suggests that the patent

should be narrowly construed so that the "location system" would consult the map database over

a functional connection, but the map database could not provide map data in response because

data is only allowed to travel from the location system to the map database -- and not in the other

direction, from the map database to the location system.  This is non-sensical because the

"location system" "uses knowledge of the road network as a constraint on position [by] map-

matching."  Exh. 1 at 12:48-50.

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The proper construction for the driver input means is the one which allows the user to enter the desired destination by either typing in the destination, selecting the destination or otherwise communicating the destination to the system.  And, the "functional[] connect[ions]" between components should allow for data transmission in both directions.

C.    **"*A Map Database…Which Distinguishes Between Physical and Legal Connectivity*" – Harman's Definition Requiring *Two* Separate Databases <u>Ignores The Fact That The Claim Clearly Refers To "*a* map database"</u>**

The next claim element to discuss is the map database element:

>  a map database functionally connected to said computing apparatus which distinguishes between physical and legal connectivity

Exh. 1 at claim 1.

MIT suggests that this language should mean:

>  "A map database that contains information on both physical and legal connectivity and arranged so that the computing apparatus can gain access to this information."

MIT Mem. at 30.

Harman suggests a much more narrow interpretation, one *not supported by anything in the patent*:

>  A database containing map information that includes separate but equal databases for representing each physical and legal connectivity, thereby causing the route-finder to consider only legal paths; this excludes a map database in which legal connectivity is represented as a link attribute.

Harman Mem. at 11.

Harman argues that the patent requires "two databases" that are "separate but equal" for representing physical and legal connectivity.  To make this argument, and apparently in recognition that *nothing* in the patent supports its narrow definition, Harman attacks this element by reaching into one document in the patent file history -- the Information Disclosure Statement

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(or "IDS") -- which MIT filed at the beginning of the patent application process to generally

describe the prior art, and in which MIT described one prior art reference with reference to the

type of legal topology information it was using.  The description in the IDS was not meant to be

all inclusive, nor did the Patent Office rules require MIT to distinguish this reference in more

detail until the Patent Examiner requested it.  Referring to this one document, Harman suggests
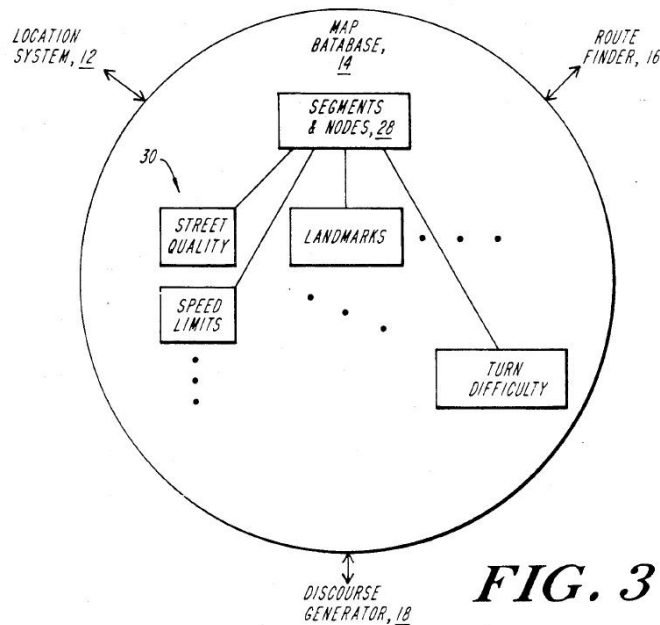
that:

> "MIT told the world that the Back Seat Driver contained a map database with '*separate but equal representations of physical and legal [connectivity],*' and the specification tells us that the database must do this so that '*the route-finder consider[s] only legal paths*.'"

Harman Mem. at 19.

To use the IDS (or anything in the prosecution history) to narrow the claim, Harman must

show that MIT deliberately, "unmistakably", "unambiguously", and "unequivocally" surrendered

claimed subject matter.  *See Omega Eng'g*, 334 F.3d at 1324-25.

In fact, the document Harman cites to in the file history includes an *additional* clarifying

sentence that Harman does not quote, namely that physical and legal connectivity in a database

"*should be integrated* because legal [connectivity] is needed for route finding, and physical

[connectivity] for route description."  Exh. 17 at MIT00344; *see* MIT Mem. at 35.  What MIT

said about this reference was consistent with MIT's proffered construction and is far from being

a "deliberate, unequivocal surrender" of the claimed subject matter.  *Cybor*, 138 F.3d at 1460.

Moreover, none of the prior art cited by Harman describes a navigation system including the

discourse generator element of claim 1, and therefore, MIT's claimed automobile navigation

system does not read on the prior art.  Harman's complaint that MIT's construction may include

map databases in the prior art is irrelevant.

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Moreover, Harman's construction ignores the clear statement of the claim referring to *a* map database that includes both physical and legal connectivity. Figure 3 of the patent clearly shows a single map database 14 with *a single file 28* in which physical and legal connectivity information is stored. Exh. 1 at Fig. 3, 8:5-11. Figure 3 is shown below:



FIG. 3

Notably, Harman provides no technical details or support for its position, and instead hand-wavingly states that its construction is correct because "MIT's … invention addressed processing time for route-finding," as if this were the only aspect of the invention. Harman Mem. at 13. MIT's construction is consistent with the description of the map database in the patent and Figures 1 and 3 of the patent, which illustrate a single map database 14 within the computing apparatus 10. Harman argues that "to practice the specific map database MIT described and claimed in the '685 patent requires that 'only legal paths' are considered during route finding." Harman Mem. at 13 (emphasis added). *But, nowhere* in the patent is the route-finder *required* to consider only legal paths, as Harman asserts. To the contrary, one embodiment of a route-finder described in the patent "systematically examine[d] *every possible*

*path* from the end of every partial route." Exh. 1 at 8:36-37 (emphasis added).  To be sure, the patent states that inclusion of legal connectivity information "*allows* the route finder to consider only legal paths" Exh. 1 at 5:12, but the patent does not *require* that only legal paths are considered.

Inexplicably, Harman cites *Minnesota Mining and Mfg. Co. v. Johnson & Johnson Orthopedics, Inc.*, 976 F.2d 1559, 1566 (Fed. Cir. 1992) ("*3M*") to support its proposition that "claim terms should be interpreted in light of the problems discussed as well as the solution provided by the patentee."  Harman Mem. at 16.  Notably, the court in *3M affirmed* the district court's finding of infringement and willful infringement.  *Id.* at 1582.  In the *3M* case, the Federal Circuit looked to the "fundamental purpose and significance of the…*invention*" in construing the terms "lubricant" and "pre-lubricated."  976 F.2d at 1565-66 (emphasis added). The *3M* court acknowledged the existence of prior art chemicals that the claim appeared to read on, but, importantly, found the chemicals were used for a different purpose than as claimed.  *Id.* A similar set of facts exists here, where prior art map databases may have included some information on legal topology, but those map databases were used for a different purpose and *not* for an automobile navigation system that generated discourse according to a discourse model.

One last point on which Harman clearly misstates the law requires some final clarification.  Harman advances the theory that unrelated correspondence from *after* a patent is issued (extrinsic evidence) can somehow create a disclaimer of the claimed subject matter. Harman states that by discussing prior art during the course of some licensing negotiations, MIT somehow ended up "disclaiming systems like those by Thoone and Suguie [*sic* "Sugie"]." Harman Mem. at 18.  Of course, these after-arising discussions cannot limit the scope of the patent and have no legal import here.  Harman ignores the Federal Circuit's clear opinion on the

value of statements made by the patent-holder or her patent attorney: "the testimony of [the

patentholder] and his patent attorney on the proper construction of the claims *is entitled to no*

*deference*.  *Markman*, 52 F.3d at 983 (emphasis added).

### D.    "*Consulting Said Map Database*" – Harman Seeks A Semantically Narrow Definition Without Regard For How The *Invention* Was Described In The Patent

The next claim element relates to "consulting the map database."

> a location system functionally connected to said computing apparatus for accepting data from said position sensing apparatus, for *consulting said map database*, and for determining the automobile's current position relative to the map database,
>
> a route-finder functionally connected to said computing apparatus, for accepting the desired destination from said driver input means and the current position from said location system, for *consulting said map database*, and for computing a route to the destination,
>
> a discourse generator functionally connected to said computing apparatus for accepting the current position from said location system and the route from said route finder, for *consulting said map database*, and for composing discourse including instructions and other messages for directing the driver to the destination from the current position,

Exh. 1 at claim 1.

MIT suggests that "consulting" means "referring to or relying on" data from the map

database without requiring direct access or query of the map database.  *See* MIT Mem. at 36.

Harman's proposed narrow construction for the term "consulting said map database" is:

> "for the purpose of seeking or requesting information from said map database"  Harman Mem. at 32.

This is another instance of Harman ignoring inconvenient facts and overly narrowing the claim

limitation.

Starting with the very first page of the patent, the inventors noted that direct consultation of the database is not what was intended by "consulting said map database," noting that the "location system" uses position data *in conjunction with* the map database to determine the current position.

[57]                    **ABSTRACT**

An automobile navigation system which provides spoken instructions to the driver of an automobile to guide the driver along a route is disclosed. The heart of the system is a computing apparatus comprising a map database, route finding algorithms, a vehicle location system, discourse generating programs, and speech generating programs. Driver input means allows the driver to enter information such as a desired destination. The route finding algorithms in the computer apparatus calculate a route to the destination. The vehicle location system accepts input from a position sensor which measures automobile movement (magnitude and direction) continuously, and using this data in conjunction with the map database, determines the position of the automobile. Based on the current position of the automobile and the route, the discourse generating programs compose driving instructions and other messages according to a discourse model in real time as they are needed. The instructions and messages are sent to voice generating apparatus which conveys them to the driver.

Several elements of claim 1 (notably, the "location system 12," the "route-finder 16," and the "discourse generator 18") refer to "consulting said map database." All of these components are shown in Figure 1 of the patent as functionally connected to the computing apparatus 10, and they all communicate with the map database 14 via the functional connection to the computing apparatus.
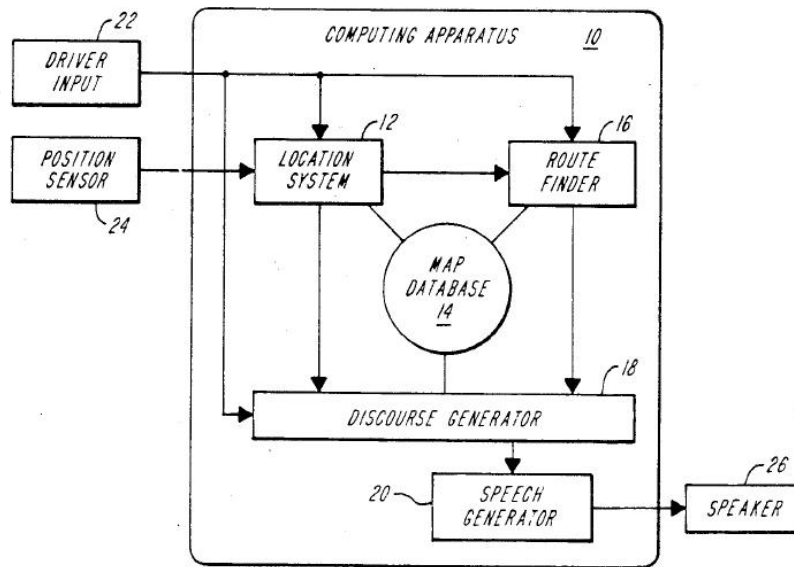
FIG. 1

Harman argues "[t]here is not even a hint of evidence to suggest that the claimed invention includes a system that does not actually 'consult said map database.'" Harman Mem. at 38. In so arguing, Harman must be ignoring that "hint" of evidence that shows that the "location system" does not directly consult the map database, but instead, receives map information from the computing apparatus, which receives map data off of a CDROM via CDROM reader. MIT Mem. at 38. The Federal Circuit has long recognized that a limitation that appears to specify a flow direction is not limited to direct coupling or communication between components of a system,

> "We also agree with the district court's interpretation that the 'to' limitation requires only that the liquid [i.e., here, the map data] move from the filter [i.e., here, the map database] 'in a pathway [via the computing apparatus] with a destination of the second pumping means [location system, route-finder, or discourse generator]' _and does not preclude the fluid from passing through intervening components_."

_Cybor_, 138 F.3d at 1459 (emphasis added).

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There also is ample support in the patent to show how the "discourse generator" uses map data without directly consulting the map database -- the patent shows how the "discourse generator" operates in the computing apparatus, e.g., via the "System Processes" described in the patent. Exh. 1 at 24:62.[5]

Thus, the discourse generator examines map data that is returned by the route finder. The discourse generator consults (relies on or refers to) the map database by relying on map data from the route finder (e.g., stored with route segments). The discourse generator is able to consult the map database because both the route-finder and the discourse generator are functionally connected to the computing apparatus.

In the preferred embodiment, the discourse generator reorganizes the sequence of segments and endpoints that make up the route into a series of intersections or driving acts. Based on the acts, the discourse generator calls on "a recognition predicate" that determines if a particular intersection requires a particular discourse "expert" that includes logic for determining what to say based on "topology" and "geometry" information about the route and upcoming intersections. Exh. 1 at 13:58-14:15. The route is calculated by the route-finder from data in the map database. Exh. 1 at 8:14-15. Thus, the "discourse generator" "consults" the map database by "referring to" and "relying on" map data from the route.

---

[5]     The "user process is the main process of the Back Seat Driver. It is this process which _finds routes_ and _gives instructions_ to the driver." Exh. 1 at 25:3-5 (emphasis added). Thus, the "user process" describes aspects of the "route-finder" and the "discourse generator." A goal or function of the "route-finder" is called GET-TO-PLACE, Exh. 1 at 26:19-20, which has a "slot" for the destination and a "slot" for the route. Exh. 1 at 26:41-46 (GET-ROUTE calculates a route). The "discourse generator" includes "the goal function for FOLLOW-ROUTE [which] gets the driver to the destination by speaking instructions." Exh. 1 at 26:49-50. The route-finder goal function and the discourse generator goal function are related because the FOLLOW-ROUTE function accesses the route "slot". Exh. 1 at 26:19-26 (discussing GET-TO-PLACE); Exh. 1 at 26:49-57; and Exh. 1 at 27:11-19 (discussing FOLLOW-ROUTE).

For example, the discourse generator relies on map data from the route when recommending that the driver make a U-turn:

> The U-TURN action is recognized when the heading of the car is the opposite of what it should be. Recall that a route is a sequence of segments and endpoints. At all times the car will be on one of the segments in the sequence. If the car's orientation is not the same as the endpoint in the path, then the driver must turn around. Preferably, the route finder only calls for a U Turn if there is no other way.

Exh. 1 at 14:51-58.

As before with reference to the user input device, Harman argues that MIT also somehow disclaimed its proffered construction by amending the claims during prosecution to "more particularly point out the connections and interactions between the different elements of the invention." Exh. 22 at MIT00376. And again, Harman has the heavy burden of showing that MIT deliberately, unambiguously, and unmistakably intended a different definition. *Omega Eng'g*, 334 F.3d at 1324-25. Harman's definition would read out of the claim the preferred embodiment, and Harman has not satisfied its high burden of doing so. *Amgen*, 314 F.3d 1313, 1349 (Fed. Cir. 2003). MIT's patent attorney was not changing the subject matter of the claimed invention by amending claim 1. Instead, the patent attorney was using clarifying language to describe exactly how the various elements of the claim interact according to *the invention*.

Harman argues that "MIT could perhaps have chosen to use broader language...but MIT did not do so." Harman Mem. at 37. To the contrary, the word "consult," which means "to refer to or rely on" was as broad a word as MIT needed to accurately claim the invention exactly as described in the patent, and it was chosen for that reason. As shown in MIT's Memorandum, "consult" means "refer to," as in a dictionary or other reference (e.g., map data); "[t]o seek

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advice or information of…[t]o refer to…[t]o take into account; consider"; and "seek information

from." *See* Exh. 14 at 248; Exh. 15 at 307; Exh. 18 (dictionary definitions).

Indeed, as shown in MIT's Memorandum, at the time of the claim amendment, "consult"

had a meaning consistent with MIT's proposed construction and with the invention.  The

amendment did not narrow the claim, but instead rephrased it to cover exactly what was

previously claimed and described in the patent.

Harman's proposed construction would read out of the claim the preferred embodiment.

Harman has not met its high burden of showing that that is the proper result.

### E.     *"At The Time The Act Is To Be Performed"* -- Harman's Construction -- that "At the Time" Essentially Means the Precise Instant of the Turn -- Takes No Account of the Context of the Invention

The last element to discuss is from claim 45:

> 45. The automobile navigation system of claim 1 wherein said
> discourse generated comprises a long description of an act given
> substantially before the act is to be performed and a short
> description given *at the time the act is to be performed*.

Exh. 1 at claim 45.

One would think this term needed no definition, because in the context of the invention,

clearly it was intended to tell the driver it was time to turn.  But, Harman has proffered a

definition that requires the directions be given at the instant of the necessary turn.  Thus, MIT's

need to make a proposal:

> "at the time the act is to be performed" means "relative timing of
> the short description in reference to the driving act and the long
> description. This phrase does not require the short description to be
> given at the instant the act should be performed. Instead, the short
> description can occur in, on, or near the location on the route at
> which the act is to be performed or shortly before the driver is
> required to act."

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MIT Mem. at 40.

Harman's proposed construction is:

> "plain and ordinary meaning (no construction needed)," which
> does not include instructions given shortly "before" the act is to be
> performed.

Harman Mem. at 41-42.

Harman forebodingly warns, "[i]f the Court were to adopt MIT's proposed

construction…it would effectively read out the words 'at the time' and replace them with the

broader word 'before.'"  Harman Mem. at 42.  That's just not right -- "at" means "on or near"

when used temporally or spatially, which is completely consistent with what the patent describes

and the invention does.  *See* MIT Mem. at 40-41.

Harman argues that "[p]erhaps no phrase is more clear and understandable to a jury as the

plain English phrase: 'at the time the act is to be performed.'"  Harman Mem. at 42.  But then,

Harman suggests that in a direction-giving system, "at" means at exactly the right second, and

not a few feet before the turn.

"At the time the act is to be performed" has a plain and ordinary meaning that is entirely

consistent with the text of the patent, namely, shortly before the act is to be performed:

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> Besides telling drivers what to do, the Back Seat Driver must also tell them when to do it. One way to do this is by speaking at the moment to act, but it is useful to also give instructions before the act, if time permits. This allows time for preparation, if required, permits the driver to hear the instruction twice, and also spares the driver the need to be constantly alert for a command which must be obeyed at once.
>
> When an act is more than a few seconds in the future, The Back Seat Driver uses a long description, which includes one or more cues which either describe the place for the act, the features of the road between the current location and the place, or the distance or time until the act. This description should be so clear that the driver cannot only recognize the place when it comes, but can also be confident in advance that she will be able to recognize the place.

Exh. 1 at 16:33-49.

Here, MIT noted *in the patent* that instructions are given "at the moment to act [and] before the act." For driving directions, the Court should give "at the time the act is to be performed" its ordinary meaning, i.e., "in, on, or near the location on the route at which the act is to be performed."

## III.   <u>CONCLUSION</u>

Harman's proposed constructions misstate the facts and misapply the law.  Many of the

terms and phrases used in the claims of MIT's patent are quite ordinary and have plain English

meaning understood by a careful reading of the patent as shown in MIT's Memorandum.

Harman's narrow, self-serving constructions should be discarded, and MIT's correct

constructions, grounded in the text and purposes of the patent, should be adopted.

April 20, 2007                                        Respectfully Submitted,

                                                     Massachusetts Institute of Technology,
                                                     By its Attorneys,

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## CERTIFICATE OF SERVICE

I certify that on April 20, 2007, I caused a copy of the forgoing document to be served upon counsel of record for Harman International Industries by electronic mail and Federal Express overnight delivery.

/s/ Steven M. Bauer
Steven M. Bauer

**IN THE UNITED STATES DISTRICT COURT**
**FOR THE DISTRICT OF MASSACHUSETTS**

MASSACHUSETTS INSTITUTE OF
TECHNOLOGY,

      Plaintiff,

v.

HARMAN INTERNATIONAL
INDUSTRIES, INCORPORATED,

      Defendant.

Civil Action No.: 05-10990 DPW

Magistrate Judge Judith G. Dein

## <u>DECLARATION OF JOHN W. PINT</u>

I, John W. Pint, state:

1.      I am an associate with the law firm of Proskauer Rose LLP, counsel for plaintiff Massachusetts Institute of Technology ("MIT").  I am familiar with the facts of the above-captioned case.

2.      I make this declaration for the sole purpose of providing the Court copies of certain documents which are attached to and referred to in the MIT's Response to Harman's Claim Construction Memorandum.

3.      Exhibit 22 is a true copy of excerpts from the U.S. Patent & Trademark Office file history of U.S. Patent No. 5,177,685.

I declare under penalty of perjury that the foregoing is true and accurate and that this Declaration was executed on April 20, 2007.

/s/ John W. Pint
John W. Pint

# EXHIBIT 22

5177685

| SERIAL NUMBER | FILING DATE | CLASS | SUBCLASS | GROUP UNIT | EXAMINER |
|---|---|---|---|---|---|
| 7/589,274 | 09/90 | 364 | 443 449 | 324 | Vipala |

JAMES R. DAVIS, NORTH CAMBRIDGE, MA; CHRISTOPHER M. SCHMANDT, MILTON, MA.

**CONTINUING DATA**
VERIFIED
NONE

**FOREIGN/PCT APPLICATIONS**
VERIFIED
NONE

FOREIGN FILING LICENSE GRANTED 09/22/90

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| | AS FILED | STATE OR COUNTRY | SHEETS DRWGS | TOTAL CLAIMS | INDEP CLAIMS | FILING FEE RECEIVED |
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ATTORNEY STEWART

NAVIGATION SYSTEM Using Road Tone Spacen

U.S. DEPT. of COMM.- Pat. & TM Office PTO

| NOTICE OF ALLOWANCE MAILED | PREPARED FOR ISSUE 2-2-9 | | CLAIMS ALLOWED | |
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| 4/30/90 | Edward Vipala / from Han | Total Claims | Print Claim |
| | Assistant Examiner / Docket Clerk | 58 | 1 |
| **ISSUE FEE** | | | **DRAWING** | |
| Amount Due / Date Paid | HARIDHTAM S. LALL | Sheets Drwg | Figs. Drwg | Print Fig. |
| $1130.00 / 9-26-90 | SUPERVISORY PATENT EXAMINER ART UNIT 231 | 3 | 5 | 1 |
| | Primary Examiner | | | |
| | **ISSUE CLASSIFICATION** | | | |
| | Class 364 | Subclass 443 | ISSUE BATCH NUMBER | |

Initial
WARNING: The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code Title 35, Sections 122 and 368. Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.

Form PTO-436
Rev. 8/89

MIT 00266

The examiner has rejected claims 1-58 under 35 U.S.C. 112, second paragraph, as being indefinite. Claim 1 has been amended to more particularly point out the connections and interactions between the different elements of the invention, as required by the examiner.

The examiner has rejected claims 1-58 under 35 U.S.C. 102(e) as being anticipated by the Ph.D. thesis of J.R. Davis. During a telephone conversation with the examiner, the examiner stated that the reason for the rejection was that the title page of the thesis bears a submission date of August 4, 1989, more than one year before the filing date of the present application. August 4 is the date that the thesis was signed, and not the date on which the thesis became available to the public. M.I.T. does not generally catalog and shelve theses until several months after the official date of submission. Enclosed is a copy of the title page of the M.I.T. library's copy of the thesis, which bears a date of February 27, 1990. Therefore, the thesis did not become available to the public more than a year before the filing date of the present application, and is therefore not 102 art with respect to the present application.

In response to the examiner's request, copies of references which were included in the Information Disclosure Statement filed with the application which the applicant considers pertinent to the present invention as claimed and which the applicant would like to be considered and made of record are enclosed and included on a new PTO-1449.

It is respectfully submitted that the claims are now in condition for allowance, and it is requested that a Notice of Allowance be issued.

Please charge any fees in connection with this response to our Deposit Account No. 08-1721.

Respectfully Submitted,

Sam Pasternack, Esq.
Reg. No. 29,676

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May 5, 1992

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on May 5, 1992